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NOTE ON THE PAPER "SOME GENERALISED FORMS OF AN OPTICAL EQUATION"

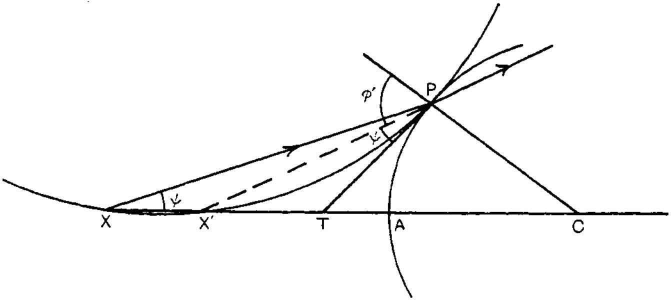
BY ALICE EVERETT, M.A.

IN the paper referred to [*Trans. Opt. Soc.* 20 (Nov. 1918), 23] ϕ, ϕ' are the angles of incidence and refraction, ψ, ψ' the inclinations to the axis of the incident and refracted rays. P is a point on the refracting surface, and X, X' are the points where the incident and refracted rays XP, $X'P$ cut the axis.

In his generalised equations Mr T. Smith introduces a new angle

$$\gamma = \phi + \psi' = \phi' + \psi,$$

which he remarks, on p. 25, is not readily visualised. The following rather curious little property of the angle γ may perhaps be worth mentioning as possibly helping to visualise it. In the figure on p. 24, let a tangent be drawn at P to the circle circumscribing the triangle PXX' (see accompanying diagram). Then γ is the angle between this tangent and the normal at P (CP produced) to the refracting surface. For the angle between the tangent at P and the chord PX' is equal to the angle PXX' or ψ, which the chord subtends in the opposite segment of the circle; while ϕ' is the angle between the chord PX' and the produced normal.



The angle γ is also twice the angle between the bisectors of (1) the angle between the incident and refracted rays, and (2) the angle between the normal and the axis.